

CLAIMS

What is claimed is:

- 1 1. A method of screening compounds for cholesterol modulating
2 activity, comprising:
 - 3 (a) contacting one or more test agents with one or more cells; and
 - 4 (b) determining whether the one or more test agents has an effect
5 on cholesterol activity, cholesterol concentration or both in a membrane of the one or
6 more cells.
- 1 2. The method of claim 1, wherein (b) comprises contacting the
2 one or more cells with a lytic compound, wherein the lytic compound causes
3 perforation or lyses of the membrane of the one or more cells when the cholesterol
4 activity, cholesterol concentration or both of the membrane of the one or more cells
5 reaches a level at or above a threshold cholesterol level.
- 1 3. The method of claim 1 or 2, further comprising performing (a)
2 and (b) one or more times with different test agents.
- 1 4. The method of claim 3, wherein the different test agents are
2 screened simultaneously.
- 1 5. The method of any one of claims 1-4, further comprising:
 - 2 (c) increasing or decreasing the cholesterol content of the
3 membrane by contacting the one or more cells with a cholesterol modulating
4 compound.
- 1 6. The method of claim 5 wherein (c) is performed prior to (a),
2 simultaneous with (a) or subsequent to (a).

- 1 7. The method of claim 5 or 6, wherein the cholesterol modulating
2 compound comprises a cyclodextrin or cyclodextrin derivative.
- 1 8. The method of any one of claims 2-7, wherein the lytic
2 compound comprises a polyene antibiotic.
- 1 9. The method of any one of claims 2-7, wherein the lytic
2 compound comprises a lysophosphatide or cholesterol oxidase.
- 1 10. The method of any one of claims 2-7, wherein the lytic
2 compound comprises a bacterial toxin.
- 1 11. The method of any one of claims 1-10, wherein the one or more
2 cells comprise one or more eukaryotic cells.
- 1 12. The method of claim 11, wherein the one or more eukaryotic
2 cells comprise one or more mammalian cells.
- 1 13. The method of claim 11 or 12, wherein the one or more cells
2 comprise one or more red blood cells.
- 1 14. The method of claim 11 or 12, wherein the one or more cells
2 comprise one or more fibroblasts.
- 1 15. The method of any one of claims 11-14, wherein the one or
2 more cells comprise one or more human cells.
- 1 16. The method of any one of claims 1-15, wherein the one or more
2 cells have vigorous cholesterol homeostasis.
- 1 17. The method of any one of claims 1-16, wherein (b) comprises
2 measuring the effect, if any, the test agent has on the cholesterol activity, cholesterol
3 concentration or both in the membrane of the one or more cells.

1 18. The method of any one of claims 1-17, wherein (b) comprises
2 measuring the permeability of the membrane of the one or more cells or the turbidity
3 of the one or more cells.

1 19. The method of any one of claims 1-18, wherein the one or more
2 cells are *in vitro*.

1 20. The method of any one of claims 1-18, wherein the one or more
2 cells are *in vivo*.

1 21. The method of any one of claims 1-20, wherein (b) comprises
2 measuring the cholesterol activity, cholesterol concentration or both in a plasma
3 membrane of the one or more cells.

1 22. A method of identifying a compound that modulates cholesterol
2 activity, comprising identifying one or more test agents that modulates the cholesterol
3 activity in a membrane of a cell, wherein the ability of the one or more test agents has
4 been determined by the method of any one of claims 1-21.

1 23. The method of claim 22 further comprising performing the
2 method of any one of claims 1-21.

1 24. A method of manufacturing a compound that modulates
2 cholesterol activity, comprising synthesizing or isolating one or more therapeutic
3 agents that are identified according to the method of claim 22 or 23.

1 25. A therapeutic agent produced according to the method of claim 24.

1 26. A method of modulating a cholesterol level of a cell comprising
2 contacting one or more cells with an effective amount of octanol, ceramide,
3 diglyceride and lysophosphosphatidyl choline, and combinations thereof, thereby
4 increasing or decreasing the cholesterol level of the one or more cells.

1 27. The method of claim 26 wherein the one or more cells are *in vivo*.

1 28. A kit for determining the effect of a test agent on the
2 cholesterol activity, cholesterol concentration and/or both in a cell membrane
3 comprising the instructions for carrying out the method of any one of claims 1-21 and
4 one or more reagents for carrying out the method.